

## ABSTRACT

There is provided a method for predicting the tendency of inhaled particles to deposit within a first patient's throat when said particles are inhaled through an airway defined by said throat. The method comprises determining at least one internal physical parameter of said airway defined by the first throat by means of acoustic imaging of the airway defined by the first throat, and matching said at least one internal physical parameter of the airway of the first throat with a dataset comprising pre-determined data relating to the corresponding internal physical parameter for the throat of at least one other patient, wherein said dataset also comprises pre-determined data relating to the tendency of said inhaled particles to deposit within said plural at least one other patient's throat, and said matching thereby enables prediction of the tendency for the inhaled particles to deposit within the first patient's throat.